

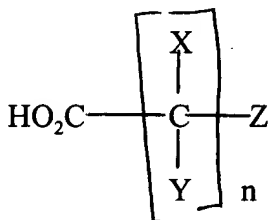
**APPENDIX**

**CLEAN COPY OF PENDING CLAIMS**

What is claimed is:

1. A composition comprising:

(A) an effective amount of at least one compound of formula I



Formula I

wherein each X is independently H, halogen, OH, SH, oxo, (C<sub>1</sub>-C<sub>8</sub>) alkyl group;

each Y is independently H, (C<sub>1</sub>-C<sub>8</sub>) alkyl group,

Z is H, OH, SH, COOH, or (C<sub>1</sub>-C<sub>8</sub>) alkyl group;

n is an integer between 1 and 10, inclusive;

and salts thereof; and

an effective amount of at least one compound from group II wherein group II compounds

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include a ketone having 3-10 carbon atoms, carbon dioxide, (C<sub>2</sub>-C<sub>10</sub>) alkene, (C<sub>1</sub>-C<sub>10</sub>) aldehyde, an alcohol having 1-8 carbon atoms, a halogenated compound containing 1-8 carbon atoms, a nitrile containing 2-4 carbon atoms, an ether containing 3-10 carbon atoms, (C<sub>6</sub>-C<sub>10</sub>) aryl group, a sulfide containing 1-8 carbon atoms and (C<sub>3</sub>-C<sub>10</sub>) heterocyclic group;

wherein any one or more of the (C<sub>6</sub>-C<sub>10</sub>) aryl group or (C<sub>3</sub>-C<sub>10</sub>) heterocyclic group may be substituted at any one or more positions with a substituent selected from the group consisting of H, oxo, halogen, OH, SH, COOH, COO(C<sub>1</sub>-C<sub>8</sub>) alkyl group, (C<sub>1</sub>-C<sub>8</sub>) alkyl group, (C<sub>1</sub>-C<sub>8</sub>) alkyl sulfide and (C<sub>1</sub>-C<sub>8</sub>) alkyl group;

and salts thereof; wherein the composition is effective to attract arthropods; or

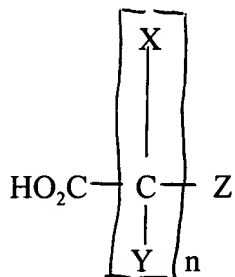
(B) a composition comprising an effective amount of tartaric acid or an acceptable salt thereof;

and an effective amount of at least one compound from group II wherein group II compounds include a ketone having 3-10 carbon atoms, carbon dioxide, (C<sub>2</sub>-C<sub>10</sub>) alkene, (C<sub>1</sub>-C<sub>10</sub>) aldehyde, an alcohol having 1-8 carbon atoms, a halogenated compound containing 1-8 carbon atoms, a nitrile containing 2-4 carbon atoms, an ether containing 3-10 carbon atoms, (C<sub>6</sub>-C<sub>10</sub>) aryl group, a sulfide containing 1-8 carbon atoms and (C<sub>3</sub>-C<sub>10</sub>) heterocyclic group;

wherein any one or more of the (C<sub>6</sub>-C<sub>10</sub>) aryl group or (C<sub>3</sub>-C<sub>10</sub>) heterocyclic group may be substituted at any one or more positions with a substituent selected from the group consisting of H, oxo, halogen, OH, SH, COOH, COO(C<sub>1</sub>-C<sub>8</sub>) alkyl group, (C<sub>1</sub>-C<sub>8</sub>) alkyl group, (C<sub>1</sub>-C<sub>8</sub>) alkyl sulfide and (C<sub>1</sub>-C<sub>8</sub>) alkyl group;

and salts thereof; wherein the composition is effective to attract arthropods; or

(C) a composition comprising an effective amount of at least one



compound of formula I,

wherein each X is independently H, halogen, OH, SH, oxo, (C<sub>1</sub>-C<sub>8</sub>) alkyl, (C<sub>1</sub>-C<sub>8</sub>) alkyl substituted with at least one substituent selected from the group consisting of H, OH, SH, and halogen;

each Y is independently H, (C<sub>1</sub>-C<sub>8</sub>) alkyl, or (C<sub>1</sub>-C<sub>8</sub>) alkyl substituted with at least one substituent selected from the group consisting of H, OH, SH, and halogen, or Y is absent when X is oxo;

Z is H, OH, SH, COOH, (C<sub>1</sub>-C<sub>8</sub>) alkyl substituted with at least one substituent selected from the group consisting of H, OH, SH, and halogen;

n is an integer between 1 and 10, inclusive;

and acceptable salts thereof;

an effective amount of at least one compound from group II wherein group II compounds include a ketone having 3-10 carbon atoms, (C<sub>2</sub>-C<sub>10</sub>)alkene, (C<sub>1</sub>-C<sub>10</sub>)aldehyde, an alcohol having 1-8 carbon atoms, a halogenated compound containing 1-8 carbon atoms, a nitrile containing 2-4 carbon atoms, an ether containing 3-10 carbon atoms, (C<sub>6</sub>-C<sub>10</sub>)aryl group, carbon dioxide, a

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sulfide containing 1-8 carbon atoms and (C<sub>3</sub>-C<sub>10</sub>)heterocyclic group;

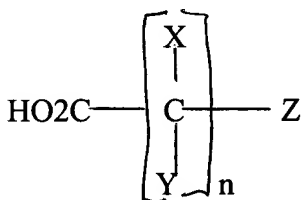
and salts thereof;

with the proviso that the compound of formula I does not consist solely of glycolic acid, oxalic acid, acetic acid, hydraacrylic acid, pyruvic acid, glyceric acid, 3-hydroxypyruvic acid, malonic acid, 3-hydroxybutyric acid, 2-methylactic acid, 2-hydroxybutyric acid, 2-oxobutyric acid, isobutyric acid, butyric acid, malic acid, 2-oxovaleric acid, 2-hydroxyvaleric acid, 2-hydroxyvaleric acid, valeric acid, isovaleric acid, 2-methylvaleric acid, hexanoic acid, mercaptoacetic acid, thiolactic acid, 3-mercaptopropionic acid, thiopropionic acid, 3-mercaptopropionic acid, 2-bromopropionic acid, 2-bromobutyric acid, 2-chloropropionic acid, 3-chloropropionic acid, lactic acid or formic acid;

and salts thereof;

wherein the composition is effective to attract arthropods.

2. A composition comprising an effective amount of at least one compound of formula I



Formula I

wherein each X is independently H, halogen, OH, SH, oxo, (C<sub>1</sub>-C<sub>8</sub>) alkyl group;

each Y is independently H, (C<sub>1</sub>-C<sub>8</sub>) alkyl group;

Z is H, OH, SH, COOH, or (C<sub>1</sub>-C<sub>8</sub>) alkyl group;

n is an integer between 1 and 10, inclusive;

and salts thereof; and

an effective amount of at least one compound from group II wherein group LI compounds include a ketone having 3-10 carbon atoms, (C<sub>2</sub>-C<sub>10</sub>)alkene, (C<sub>1</sub>-C<sub>10</sub>)aldehyde, an alcohol having 1-8 carbon atoms, a halogenated compound containing 1-8 carbon atoms, a nitrile containing 2-4 carbon atoms, an ether containing 3-10 carbon atoms, carbon dioxide, (C<sub>6</sub>-C<sub>10</sub>)aryl group, a sulfide containing 1-8 carbon atoms and (C<sub>3</sub>-C<sub>10</sub>)heterocyclic group;

wherein any one or more of the (C<sub>6</sub>-C<sub>10</sub>)aryl or (C<sub>3</sub>-C<sub>10</sub>)heterocyclic may be substituted at any one or more positions with a substituent selected from the group consisting of H, oxo, halogen, OH, SH, COOH, COO(C<sub>1</sub>-C<sub>8</sub>)alkyl group, (C<sub>1</sub>-C<sub>8</sub>)alkyl group, (C<sub>1</sub>-C<sub>8</sub>)alkyl sulfide and (C<sub>1</sub>-C<sub>8</sub>)alkyl group, and NR<sub>1</sub>R<sub>2</sub> wherein R<sub>1</sub> and R<sub>2</sub> are independently selected from the group consisting of (C<sub>1</sub>-C<sub>8</sub>) alkyl and H;

and salts thereof; wherein the composition is effective to attract arthropods.

3. The composition of claim 1 wherein the arthropod is a mosquito belonging to the genera Culex, Aedes, Mansonia, Wyeomyia, Psorophora, Coquillettia or Anopheles.

4. The composition of claim 1 wherein X is H, OH, or CH<sub>3</sub>.

5. The composition of claim 1 wherein Y is H.

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6. The composition of claim 1 wherein n is 1 or 2.

7. The composition of claim 1 wherein the compound of formula I is lactic acid, glycolic acid, thiolactic acid, tartaric acid, or an acceptable salt thereof.

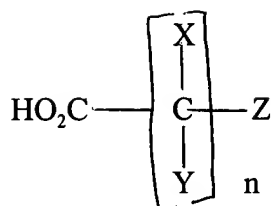
8. The composition of claim 1 wherein the compound of formula I is lactic acid, or an acceptable salt thereof.

9. The composition of claim 1 wherein the ketone is acetone, 2-butanone, 2-pentanone, 2-hexanone, 3-pentanone, 3-hexanone, 3-heptanone, 4-heptanone, 5-nonanone, 3-methyl-2-butanone, 4-methyl-2-pentanone, 3-penten-2-one, 3-buten-2-one, 3-hydroxy-2-butanone, 2,3-butanedione or 2,4-pentanedione.

15. The composition of claim 1 wherein the sulfide is carbon disulfide, dimethyl sulfide, diethyl sulfide, dimethyl disulfide, diethyl disulfide, methyl propyl disulfide, ethyl vinyl sulfide, dimethyl sulfoxide or dimethyl trisulfide.

20. The composition of claim 1 wherein formula I compounds comprise lactic acid and group II compounds comprise acetone, dimethyl sulfide and carbon dioxide.

22. A method of attracting arthropods comprising the step of exposing the environment with a composition comprising an effective amount of at least one compound of formula I



Formula I

wherein each X is independently H, halogen, OH, SH, oxo, (C<sub>1</sub>-C<sub>8</sub>) alkyl group;

each Y is independently H, (C<sub>1</sub>-C<sub>8</sub>) alkyl group,

Z is H, OH, SH, COOH, or (C<sub>1</sub>-C<sub>8</sub>) alkyl group;

n is an integer between 1 and 10, inclusive;

and salts thereof; and

an effective amount of at least one compound from group II wherein group II compounds include a ketone having 3-10 carbon atoms, carbon dioxide, (C<sub>2</sub>-C<sub>10</sub>) alkene, (C<sub>1</sub>-C<sub>10</sub>) aldehyde, an alcohol having 1-8 carbon atoms, a halogenated compound containing 1-8 carbon atoms, a nitrile containing 2-4 carbon atoms, an ether containing 3-10 carbon atoms, (C<sub>6</sub>-C<sub>10</sub>) aryl group, a sulfide containing 1-8 carbon atoms and (C<sub>3</sub>-C<sub>10</sub>) heterocyclic group; wherein any one or more of the (C<sub>6</sub>-C<sub>10</sub>) aryl group or (C<sub>3</sub>-C<sub>10</sub>) heterocyclic group may be substituted at any one or more positions with a substituent selected from the group consisting of H, oxo, halogen, OH, SH, COOH, COO(C<sub>1</sub>-C<sub>8</sub>) alkyl group, (C<sub>1</sub>-C<sub>8</sub>) alkyl group, (C<sub>1</sub>-C<sub>8</sub>) alkyl sulfide and (C<sub>1</sub>-C<sub>8</sub>) alkyl group;

and salts thereof; wherein the composition is effective to attract arthropods; or

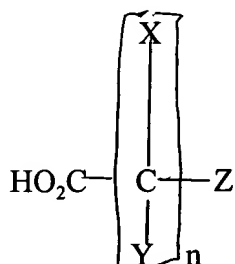
(B) a composition comprising an effective amount of tartaric acid or an acceptable salt thereof;

and an effective amount of at least one compound from group II wherein group II compounds include a ketone having 3-10 carbon atoms, carbon dioxide, (C<sub>2</sub>-C<sub>10</sub>) alkene, (C<sub>1</sub>-C<sub>10</sub>) aldehyde, an alcohol having 1-8 carbon atoms, a halogenated compound containing 1-8 carbon atoms, a nitrile containing 2-4 carbon atoms, an ether containing 3-10 carbon atoms, (C<sub>6</sub>-C<sub>10</sub>) aryl group, a sulfide containing 1-8 carbon atoms and (C<sub>3</sub>-C<sub>10</sub>) heterocyclic group;

wherein any one or more of the (C<sub>6</sub>-C<sub>10</sub>) aryl group or (C<sub>3</sub>-C<sub>10</sub>) heterocyclic group may be substituted at any one or more positions with a substituent selected from the group consisting of H, oxo, halogen, OH, SH, COOH, COO(C<sub>1</sub>-C<sub>8</sub>) alkyl group, (C<sub>1</sub>-C<sub>8</sub>) alkyl group, (C<sub>1</sub>-C<sub>8</sub>) alkyl sulfide and (C<sub>1</sub>-C<sub>8</sub>) alkyl group;

and salts thereof; wherein the composition is effective to attract arthropods; or

(C) a composition comprising an effective amount of at least one



compound of formula I,

wherein each X is independently H, halogen, OH, SH, oxo, (C<sub>1</sub>-C<sub>8</sub>) alkyl, (C<sub>1</sub>-C<sub>8</sub>) alkyl substituted with at least one substituent selected from the group consisting of H, OH, SH, and



halogen;

each Y is independently H, (C<sub>1</sub>-C<sub>8</sub>) alkyl, or (C<sub>1</sub>-C<sub>8</sub>) alkyl substituted with at least one substituent selected from the group consisting of H, OH, SH, and halogen, or Y is absent when X is oxo;

Z is H, OH, SH, COOH, (C<sub>1</sub>-C<sub>8</sub>) alkyl substituted with at least one substituent selected from the group consisting of H, OH, SH, and halogen;

n is an integer between 1 and 10, inclusive;

and acceptable salts thereof;

an effective amount of at least one compound from group II wherein group II compounds include a ketone having 3-10 carbon atoms, (C<sub>2</sub>-C<sub>10</sub>)alkene, (C<sub>1</sub>-C<sub>10</sub>)aldehyde, an alcohol having 1-8 carbon atoms, a halogenated compound containing 1-8 carbon atoms, a nitrile containing 2-4 carbon atoms, an ether containing 3-10 carbon atoms, (C<sub>6</sub>-C<sub>10</sub>)aryl group, carbon dioxide, a sulfide containing 1-8 carbon atoms and (C<sub>3</sub>-C<sub>10</sub>)heterocyclic group; and salts thereof;

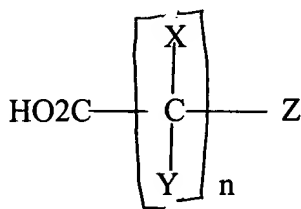
with the proviso that the compound of formula I does not consist solely of glycolic acid, oxalic acid, acetic acid, hydraacrylic acid, pyruvic acid, glyceric acid, 3-hydroxypyruvic acid, malonic acid, 3-hydroxybutyric acid, 2-methylactic acid, 2-hydroxybutyric acid, 2-oxobutyric acid, isobutyric acid, butyric acid, malic acid, 2-oxovaleric acid, 2-hydroxyvaleric acid, 2-hydroxyvaleric acid, valeric acid, isovaleric acid, 2-methylvaleric acid, hexanoic acid, mercaptoacetic acid, thiolactic acid, 3-mercaptopropionic acid, thiopropionic acid, 3-mercaptopropionic acid, 2-bromopropionic acid, 2-bromobutyric acid, 2-chloropropionic acid, 3-chloropropionic acid, lactic acid or formic acid;

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and salts thereof;

wherein the composition is effective to attract arthropods.

23. A method of attracting arthropods comprising the step of exposing the environment with a composition comprising an effective amount of at least one compound of formula I



Formula I

wherein each X is independently H, halogen, OH, SH, oxo, (C<sub>1</sub>-C<sub>8</sub>) alkyl group;

each Y is independently H, (C<sub>1</sub>-C<sub>8</sub>) alkyl group;

Z is H, OH, SH, COOH, or (C<sub>1</sub>-C<sub>8</sub>) alkyl group;

n is an integer between 1 and 10, inclusive;

and salts thereof; and

an effective amount of at least one compound from group II wherein group LI compounds include a ketone having 3-10 carbon atoms, (C<sub>2</sub>-C<sub>10</sub>)alkene, (C<sub>1</sub>-C<sub>10</sub>)aldehyde, an alcohol having 1-8 carbon atoms, a halogenated compound containing 1-8 carbon atoms, a nitrile containing 2-4 carbon atoms, an ether containing 3-10 carbon atoms, carbon dioxide, (C<sub>6</sub>-C<sub>10</sub>)aryl group, a sulfide containing 1-8 carbon atoms and (C<sub>3</sub>-C<sub>10</sub>)heterocyclic group;

wherein any one or more of the (C<sub>6</sub>-C<sub>10</sub>)aryl or (C<sub>3</sub>-C<sub>10</sub>)heterocyclic may be substituted at any one or more positions with a substituent selected from the group consisting of H, oxo, halogen, OH, SH, COOH, COO(C<sub>1</sub>-C<sub>8</sub>)alkyl group, (C<sub>1</sub>-C<sub>8</sub>)alkyl group, (C<sub>1</sub>-C<sub>8</sub>)alkyl sulfide and (C<sub>1</sub>-C<sub>8</sub>)alkyl group, and NR<sub>1</sub>R<sub>2</sub> wherein R<sub>1</sub> and R<sub>2</sub> are independently selected from the group consisting of (C<sub>1</sub>-C<sub>8</sub>) alkyl and H;;

and salts thereof; wherein the composition is effective to attract arthropods.

24. The method of claim 22 wherein the arthropod is a mosquito belonging to the genera Culex, Aedes, Mansonia, Wyeomyia, Coquillettia, Psorophora or Anopheles.

25. The method of claim 22 wherein X is H, OH, or CH<sub>3</sub>.

26. The method of claim 22 wherein Y is H.

27. The method of claim 22 wherein n is 1 or 2.

28. The method of claim 22 wherein formula I compounds comprise lactic acid, glycolic acid, thiolactic acid, tartaric acid, or an acceptable salt thereof.

29. The method of claim 22 wherein formula I compounds comprise lactic acid or an acceptable salt thereof.

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30. The method of claim 22 wherein the ketone is acetone, 2-butanone, 2-pentanone, 2-hexanone, 2-heptanone, 3-pentanone, 3-hexanone, 3-heptanone, 4-heptanone, 5-nonanone, 3-methyl-2-butanone, 4-methyl-2-pentanone, 3-pentanone-2-one, 3-butanone-2-one, 3-hydroxy-2-butanone, 2,3-butanedione or 2,4-pentanedione.

36. The method of claim 22 wherein the sulfide is carbon disulfide, dimethyl sulfide, diethyl sulfide, dimethyl disulfide, diethyl disulfide, methyl propyl disulfide, ethyl vinyl sulfide, dimethyl sulfoxide or dimethyl trisulfide.

40. The method of claim 22 wherein formula I compounds comprise lactic acid or an acceptable salt thereof and group II compounds comprise acetone and dimethyl disulfide.

43. The composition of claim 1 wherein the compound of formula 1 is lactic acid, pyruvic acid, glycolic acid, thiolactic acid, tartaric acid, or an acceptable salt thereof.

44. A composition comprising mosquito attracting amounts of lactic acid and butanone.

45. The composition of claim 44 further comprising dimethyl disulfide.

46. A composition comprising mosquito attracting amounts of lactic acid and 2-pentanone.

47. A composition comprising mosquito attracting amounts of lactic acid and carbon disulfide.

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48. The composition of claim 47 further comprising carbon dioxide.

49. A composition comprising mosquito attracting amounts of lactic acid and acetone.

50. The composition of claim 49 further comprising carbon dioxide.

51. A composition comprising mosquito attracting amounts of lactic acid and dimethyl disulfide.

52. The composition of claim 51 further comprising carbon dioxide.

53. A composition comprising mosquito attracting amounts of pyruvic acid and acetone.

54. A composition comprising mosquito attracting amounts of glycolic acid and acetone.

55. A composition comprising mosquito attracting amounts of glycolic acid and carbon dioxide.

56. The composition of claim 55 further comprising lactic acid.

57. The method of claim 22 wherein formula I compounds comprise lactic acid, glycolic acid, pyruvic acid, thiolactic acid, tartaric acid, or an acceptable salt thereof.

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58. A method for attracting mosquitos comprising exposing an environment with a composition comprising mosquito attracting amounts of lactic acid and butanone.

59. The method of claim 58 wherein the composition further comprises dimethyl disulfide.

60. A method for attracting mosquitos comprising exposing an environment with a composition comprising mosquito attracting amounts of lactic acid and 2-pentanone.

61. A method for attracting mosquitos comprising exposing an environment with a composition comprising mosquito attracting amounts of lactic acid and carbon disulfide.

62. The method of claim 61 wherein the composition further comprises carbon dioxide.

63. A method for attracting mosquitos comprising exposing an environment with a composition comprising mosquito attracting amounts of lactic acid and acetone.

64. The method of claim 63 wherein said composition further comprises carbon dioxide.

65. A method for attracting mosquitos comprising exposing an environment with a composition comprising mosquito attracting amounts of lactic acid and dimethyl disulfide.

66. The method of claim 65 wherein the composition further comprises carbon dioxide.

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67. A method for attracting mosquitos comprising exposing an environment with a composition comprising mosquito attracting amounts of pyruvic acid and acetone.

68. A method for attracting mosquitos comprising exposing an environment with a composition comprising mosquito attracting amounts of glycolic acid and acetone.

69. A method for attracting mosquitos comprising exposing an environment with a composition comprising mosquito attracting amounts of glycolic acid and carbon dioxide.

70. The method of claim 69 wherein said composition further comprises lactic acid.

71. A composition consisting essentially of mosquito attracting amounts of lactic acid and butanone.

72. A composition consisting essentially of mosquito attracting amounts of lactic acid, butanone, and dimethyl disulfide.

73. A composition consisting essentially of mosquito attracting amounts of lactic acid and 2-pentanone.

74. A composition consisting essentially of mosquito attracting amounts of lactic acid and carbon disulfide.

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75. A composition consisting essentially of mosquito attracting amounts of lactic acid, carbon disulfide, and carbon dioxide.

76. A composition consisting essentially of mosquito attracting amounts of lactic acid and acetone.

77. A composition consisting essentially of mosquito attracting amounts of lactic acid, acetone, and carbon dioxide.

78. A composition consisting essentially of mosquito attracting amounts of lactic acid and dimethyl disulfide.

79. A composition consisting essentially of mosquito attracting amounts of lactic acid, dimethyl disulfide, and carbon dioxide.

80. A composition consisting essentially of mosquito attracting amounts of pyruvic acid and acetone.

81. A composition consisting essentially of mosquito attracting amounts of glycolic acid and acetone.

82. A composition consisting essentially of mosquito attracting amounts of glycolic acid and carbon dioxide.



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83. A composition consisting essentially of mosquito attracting amounts of glycolic acid, carbon dioxide, and lactic acid.

84. (Newly Added) A method for attracting mosquitos comprising exposing an environment with a composition consisting essentially of mosquito attracting amounts of lactic acid and butanone.

85. A method for attracting mosquitos comprising exposing an environment with a composition consisting essentially of mosquito attracting amounts of lactic acid, butanone and dimethyl disulfide.

86. A method for attracting mosquitos comprising exposing an environment with a composition consisting essentially of mosquito attracting amounts of lactic acid and 2-pentanone.

87. A method for attracting mosquitos comprising exposing an environment with a composition consisting essentially of mosquito attracting amounts of lactic acid and carbon disulfide.

88. A method for attracting mosquitos comprising exposing an environment with a composition consisting essentially of mosquito attracting amounts of lactic acid, carbon disulfide, and carbon dioxide.

89. A method for attracting mosquitos comprising exposing an environment with a composition

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consisting essentially of mosquito attracting amounts of lactic acid and acetone.

90. A method for attracting mosquitos comprising exposing an environment with a composition consisting essentially of mosquito attracting amounts of lactic acid, acetone, and carbon dioxide.

91. A method for attracting mosquitos comprising exposing an environment with a composition consisting essentially of mosquito attracting amounts of lactic acid and dimethyl disulfide.

92. A method for attracting mosquitos comprising exposing an environment with a composition consisting essentially of mosquito attracting amounts of lactic acid, dimethyl disulfide, and carbon dioxide.

93. A method for attracting mosquitos comprising exposing an environment with a composition consisting essentially of mosquito attracting amounts of pyruvic acid and acetone.

94. A method for attracting mosquitos comprising exposing an environment with a composition consisting essentially of mosquito attracting amounts of glycolic acid and acetone.

95. A method for attracting mosquitos comprising exposing an environment with a composition consisting essentially of mosquito attracting amounts of glycolic acid and carbon dioxide.

96. A method for attracting mosquitos comprising exposing an environment with a composition

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consisting essentially of mosquito attracting amounts of glycolic acid, carbon dioxide, and lactic acid.--

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